Advanced Java Programming

Week 2 Topic Outline

Inheritance

1. Is-a vs. has-a relationships
2. Subclass / Superclass (child / parent class)
3. Method overriding
4. Protected members
5. Object class
6. Up-casting
7. Polymorphism
8. Down-casting
   a. Checking cast safety with `instanceof`
   b. `ClassCastException`s

Limiting OOP Behaviors

1. Preventing construction
2. Preventing method overriding
3. Preventing subclassing

Abstract Classes and Interfaces

1. Abstract vs. concrete classes
2. Abstract methods and classes
3. Interfaces and can-do relationships
   a. The interface contract
   b. Programming to an interface, not an implementation

Javadoc Documentation

1. Javadoc lets us view the "interface" for a class
2. Preconditions and post-conditions
3. Javadoc comments
4. `@author`, `@version`, `@param`, `@return`, `@throws`

5. Generating documentation with the `javadoc` tool
6. Google "javadoc tutorial" for more information

Packages

1. Java's package system
   a. Correspondance to file system
   b. Non-hierarchical package names
2. Importing classes
   a. Importing by name
   b. Wildcard importing
   c. The `java.lang` package
3. Referring to objects by package name
4. Importing static members

The Java API

1. Navigating the API
2. The `StringBuilder` class
3. Wrapper classes
4. The `ArrayList` class